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How much are videos on YouTube sufficient for Turkish hypertension patients?

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ABSTRACT

Aims: The quality of YouTube videos has been studied across various medical specialties and for numerous diseases. The aim of this study is to assess the quality, adequacy, and reliability of video content related to hypertension (HT) created on the YouTube platform.

Methods: Considering that the native language of most patients and physicians is Turkish in our country, the term 'Hipertansiyon' was searched in the YouTube search section on September 1, 2023. Only videos from the last ten years were included. Video quality and reliability, included in the study data, were defined using the 'Global Quality Score' (GQS) and 'Modified DISCERN Scores' (MDS), which have been previously used in many internet-based studies.

Results: A total of 99 videos were included. The mean number of subscribers was 107,997.77 ± 25,850.54, and the most frequently encountered content in the videos was hypertension and its treatment. The mean MDS scores were 4.61 and 4.44, while the mean GQS scores were 3.94 and 3.91. Considering that the majority of the videos were created by expert academic medical doctors or specialists, the content was found to be satisfactory. Academicians hold academic titles and conduct educational and research activities at universities, whereas non-academic individuals are typically specialist medical doctors.

Conclusion: Videos created by expert academic medical doctors should be preferred.

Keywords: Hypertension, general information, global quality score, modified DISCERN score, treatment, video content

INTRODUCTION

Systolic blood pressure represents the pressure exerted on the vessel walls by the blood ejected by the contraction of the left ventricle, while diastolic blood pressure is the pressure applied when the left ventricle is at rest. Despite the existence of specific graded levels and definitions, hypertension (HT) is simply defined as SBP above 140 mmHg or DBP above 90 mmHg. The diagnosis of HT increases the risk of morbidity and mortality due to cardiovascular, cerebrovascular, or renal diseases.[1]

According to data published by the Turkish Hypertension and Kidney Diseases Association in 2012, the prevalence of hypertension in the adult population was found to be 32.3% in women, 28.4% in men, and 30.3% in the entire adult population. By age groups, hypertension is most common among the 60-69 age group and can reach as high as 85.2% in this group. Additionally, as an individual's body mass index increases, blood pressure also increases.[2] High blood pressure, which is one of the most important causes of cardiovascular mortality, causes 7.5 million deaths worldwide every year, accounting for 12.8% of all deaths.[3] Hypertension is the leading risk factor among preventable deaths.[4,5]

Hypertension has become an important public health problem in developing countries, especially in the last 30 years, due to the epidemiological transilience in these countries. In a recent study, data from 136 countries is used and the number of individuals with uncontrolled hypertension is found to have been reached three billion in the last 30 years.[6] After all, the economic burden caused by this disease is approximately 370 billion dollars, which corresponds to 10% of all healthcare costs.[7] Masked HT and subtle organ dysfunction/failure are among the most feared phenomena regarding HT.[8,9] However, associated cardiovascular complications such as heart failure, coronary heart diseases, ischemic and hemorrhagic stroke, peripheral vascular diseases, renal failure and visual disturbances can be easily prevented with early diagnosis, lifestyle changes and appropriate treatment.[10] Studies have shown that although there are recently drastic improvements in diagnosis and treatment proficiencies in developed countries, awareness about the HT and ratio of controlled cases are maintaining to remain lower in developing countries.[11] Nevertheless, studies in our country indicate that the frequency of HT varied between 25% and 32%, and ratio of controlled cases is varying between 16.4% and 28.7%.[12-14]

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Individuals often use the internet to find answers to questions they have about their own health problems. Although health professionals provide patients with reliable and regular information about diseases, surgical procedures or various complications, individuals often prefer to access information via the internet and social media. According to the 2021 Household Information Technologies Utilization Survey of the Turkish Statistical Institute (TSI), internet utilization rate in our country was found to be 82.6% among individuals in the 16-74 age group, and the rate of internet access among households was 92.0%.[15] The internet and social media are important parts of our daily lives and provide people with a lot of information with the help of a handheld device. YouTube was launched on 15th of February, 2005, provides services in many areas and is one of the most frequently used social media sites. It provides approximately one billion users with the opportunity to watch millions of video content per day.[16] Although the increase in the use and popularity of YouTube in society is in many different areas, its use in the field of health is increasing day by day. It is claimed to be an effective and powerful means for health education.[17] It has been stated that internet usage and following health-related news on the internet are highly widespread in Turkey. 69.6% of our society research health-related information such as diseases, injuries, nutrition, and health improvement on the internet (15). Health literacy in monitoring chronic diseases offers benefits such as screening and understanding general information, benefiting from early diagnosis programs, and provides increased quality of self-care.[18,19] It is declared that effective treatment of chronic diseases and prevention of complications are directly associated with health literacy, which is qualified by the ability to access and use information.[19,20] Individuals, along with healthcare providers, should be actively involved in the management of patients with chronic diseases. In order to increase the health literacy of patients, it is recommended that healthcare professionals make educational plans and benefit from resources such as written and visual materials. Undoubtedly, one of these resources is the social media environment furnished by the World Health Organization.

Content on YouTube and other social media platforms can be created by many people and sources; however, information can be uploaded to the relevant platforms without any control or audit. Patients' expectations from the healthcare system are affected at different levels due to the information they access from those sources. Today, the amount of medical data accessible via the internet has been constantly increasing, and the reliability and adequacy of these contents are not clearly known.[21,22] The quality, accuracy, adequacy, and reliability of YouTube videos have been studied by many medical specialties and for many diseases. Our aim in conducting this study is to evaluate the quality, adequacy and reliability of video content created on the YouTube platform regarding HT.

METHODS

Our study did not require ethical committee approval since access to YouTube videos is legally open to the public. All procedures were carried out in accordance with the ethical rules and the principles. To find videos related to hypertension (HT), the term 'Hipertansiyon' was entered into the YouTube search section in Turkish on September 1, 2023.

In order to access the most up-to-date videos, those from the last ten years were included in the study. The search history on the computer was cleared before browsing, and documented lists that did not involve cookies were recorded. Videos were filtered by relevance in the YouTube filters section.

Videos that were not in Turkish, not related to hypertension, or did not contain audio were excluded from the study. Additionally, videos that were required to be shorter than one minute and thus had a time constraint, known as 'shorts' videos, were excluded from the study. Video content that was not 'shorts' but less than one minute in duration was included in the study as there was no time limit. There were no upper- or lower-time limits for the videos included. Copied video contents were evaluated as a single video that started with the first encountered video. Due to the increase in the number of videos that met the exclusion criteria, especially after the first 99 videos, and the fact that patients generally do not watch videos beyond the 250th video, our study data was generated with 99 video contents.

The videos included in our study were evaluated by independent researchers who were competent experts in hypertension (HT), its diagnosis, treatment, and follow-up. In this evaluation, video durations, view counts, likes, and comment counts were recorded. Additionally, the presence of information about the disease, diagnosis, epidemiology, treatment, diet, complications, etc., was checked in the video content. The individuals providing information in the video content were categorized as either academicians or non-academicians. "Academicians hold academic titles and conduct educational and research activities at universities, whereas non-academic individuals are typically specialist medical doctors."

Statistical Analysis

The quality and reliability of the videos included in the study were assessed using the 'Global Quality Score' (GQS) and the Modified 'DISCERN' Score (MDS), which have been used in many internet-based studies. GQS is a scoring system created by Bernard et al. This scoring system measures the quality of information obtained from the internet. The highest score of five indicates that the video is of high quality and contains clear information, while the lowest score of one indicates that the video quality is very poor and most information is missing. The MDS includes five questions with yes/no answers. It is a scale where yes answers receive one point, and no answers receive zero points, so the highest score is five, and the lowest score is zero. With this scoring system, the objectivity, reliability, and understandability of the video are evaluated in terms of sources. The Cronbach alpha was 0.72 for reliability of MDS and 0.70 for GQS.

RESULTS

Out of the 99 YouTube video contents, 93 were created by healthcare professionals, while the remaining portion was created by non-healthcare professionals. The video contents were classified based on their publication date into two categories;

1. The last five years (2019-2023)
2. The five years before that (2014-2018)

The majority of the videos (n:67, 67.7%) were from the last five years. When we analyzed the contents of the YouTube videos, we found that among them, 92 were including the information about HT definition, 89 about diagnosis, 85 about epidemiology, 92 about treatment, 91 about dietary recommendations, and 89 about complications in **Table 1**.

Table 1. Analysis of video contents

	Available	Not available
Definition	92 (92.9%)	7 (7.1%)
Diagnosis	89 (89.9%)	10 (10.1%)
Epidemiology	85 (85.9%)	14 (14.1%)
Treatment	92 (92.9%)	7 (7.1%)
Recommendations about diet	91 (91.9%)	8 (8.1%)
Complications	89 (89.9%)	10 (10.1%)

In terms of the mean values of the screened and watched videos in our study, the average number of subscribers was 107,997.77 ± 25,850.54, the average number of views was 23,574.08, the average number of likes was 378.43, and the average number of comments was 73.30 in **Table 2**.

Table 2. Analysis of the contents in how they affect the people

	Mean	Minimum	Maximum
Number of subscribers	107997.77	39	1450000
Number of views	23574.08	34	457000
Number of likes	378.43	0	9100
Number of comments	73.30	0	5000

The videos were evaluated by each researcher with both GQS and MDS. The proportion of videos gaining 5 points in MDS from both experts were 72.7% and 62.6%, respectively. First expert gave 0 point with MDS to none of the videos, and second expert gave 0 to only video. With GQS, first expert gave 1 point to 3 videos and second expert to 4 videos. The proportion of videos obtaining 5 points in GQS from both experts were 40.4% and 33.3%, respectively in **Table 3**.

Table 3. Evaluation of the video contents

Modifiye 'DISCERN' score (MDS)	First expert	Second expert
0 points	0	1 (1.0%)
1 points	1 (1.0%)	0
2 points	3(3.0%)	5 (5.1%)
3 points	3 (3.0%)	4 (4.0%)
4 points	20 (20.2%)	27 (27.3%)
5 points	72 (72.7%)	62 (62.6%)
Gobal quality score (GQS)	**First expert**	**Second expert**
1 puan	3 (3.0%)	4 (4.0%)
2 puan	6 (6.1%)	6 (6.1%)
3 puan	25 (25.3%)	18 (18.2%)
4 puan	25 (25.3%)	38 (38.4%)
5 puan	40 (40.4%)	33 (33.3%)

The comparison of two evaluations is depicted in **Table 4**. Since the distribution was not a normal distribution, the Spearman correlation test was used. There is a highly positive and significant relationship between the two experts' ratings.

Table 4. Comparison of evaluations executed by two experts

	First expert M±SD	Second expert M±SD	r	p
Modified 'DISCERN' score	4.61 ± 0.78	4.44 ± 0.92	0.71	0.000*
Global quality score	3.94 ± 1.09	3.91 ± 1.06	0.83	0.000*

*p<0.01, r: Spearman's correlation test

The relationship between the average of the scores in each of MDS and GQS and the number of views, number of likes and number of comments was examined. Since the distribution was not normal, Spearman correlation test analysis was used. No significant relationship was detected between neither MDS nor GQS and the number of views, likes, comments and subscribers in **Table 5 and 6**.

Table 5. Evaluation of relationship video data and MDS scores with spearman correlation test

Countable features of the videos	Count	r	p
Number of views	99	-0.12	0.052
Number of likes	99	-0.07	0.47
Number of comments	99	-0.11	0.26
Number of subscribers	99	-0.07	0.51

Table 6. Evaluation of relationship video data and GQS scores with Spearman correlation test

Countable features of the videos	Count	r	p
Number of views	99	-0.20	0.2
Number of likes	99	-0.05	0.62
Number of comments	99	-0.17	0.08
Number of subscribers	99	-0.18	0.08

Table 7. Evalution relationship among of MDS scores, video contents and ocuupation of the video producers

Video content	Groups	Count	Mean MDS	p
Occupation	Medical doctor	93	4.61	.47
	Other than medical doctor	6	3.16	
Definition	Available	92	4.56	.16
	Not available	7	4.00	
Diagnosis	Available	89	4.62	.02
	Not available	10	3.70	
Epidemiology	Available	85	4.71	.000
	Not available	14	3.39	
Treatment	Available	92	4.62	.001
	Not available	7	3.29	
Diet	Available	91	4.63	.000
	Not available	8	3.38	
Complication	Available	89	4.68	.000
	Not available	10	3.15	

Table 8. Evalution relationship among of GQS scores, video contents and ocuupation of the video producers

Video content	Groups	Count	Mean GQS	p
Occupation	Medical doctor	93	4.61	.47
	Other than medical doctor	6	3.16	
Definition	Available	92	4.56	.16
	Not available	7	4.00	
Diagnosis	Available	89	4.62	.02
	Not available	10	3.70	
Epidemiology	Available	85	4.71	.000
	Not available	14	3.39	
Treatment	Available	92	4.62	.001
	Not available	7	3.29	
Diet	Available	91	4.63	.000
	Not available	8	3.38	
Complication	Available	89	4.68	.000
	Not available	10	3.15	

It was examined whether there was a significant difference between the MDS and GKS average scores of the videos according to the profession of the content producer. The occupational group was divided into two categories:

1) Doctors, and 2) Professions other than doctors. Content created by doctors was found to be significantly higher than content producers other than doctors in terms of MDS score. On the other hand, there is no significant difference between the groups in terms of GQS. Both the average scores of MDS and GQS of videos containing diagnostic, epidemiological, treatment, dieting, and complication information are higher than the averages of videos that do not contain these parameters.

At the same time, when look over at the relationship between these parameters and the average scores of each of MDS and GQS, there is statistical significance ($p<0.05$) in **Table 7 and 8**.

DISCUSSION

It is thought that 85-90% of CHD cases are multifactorial (There have been many video analysis studies regarding the YouTube and other social media platforms since recent years. However, studies examining videos about HT on YouTube are almost absent in Turkey. For this reason, in our study, we looked over at HT videos on YouTube and the profession of the video producer and their content by using GQS and MDS scales.

As seen in previous studies, the owners of health-related video contents are from various professional groups, but a significant portion of them are physicians. For example, in a study where fibromyalgia videos are evaluated, it is reported that the 28% of the videos are uploaded by doctors[23], in another study where 200 videos about spondylarthritis are evaluated, it is found that 62% those are uploaded by healthcare professionals[24], and 39.2% of videos about exercises applied to ankylosing spondylitis patients are uploaded by universities/professional organizations/associations.[25]

In our study, 93 of the content owners of the 99 videos examined were medical doctors, and most of them were uploaded to the YouTube platform in the last 5 years. As it is known, hypertension is one of the most common chronic diseases in the world and correct treatment, follow-up and current and accurate information are of great importance. In this regard, YouTube provides ease of access to information since it is a public and easily accessible platform. At the same time, YouTube ranks second among the most frequently used internet platforms in the world.[26] However, this convenience can sometimes be beneficial and sometimes harmful. This has a great impact on the correct guidance of patients. The lack of references in YouTube videos has been criticized in some studies, as it may mislead viewers.[27,28] In that study which is on fibromyalgia videos, more than 50% were grouped as "very weak" and "underweight" according to the MDS scale.[23] In another study conducted by Lee and colleagues on YouTube videos about gallstones, more than half of the videos were found to be misleading.[29] In their study where Gonzalez-Estrada et al.[30] examine 200 asthma-related videos, and show that the content of the videos was most often related to alternative medicine and the MDS scores of videos of health professionals are higher than those of other producers.

Although a significant part of the studies in the literature are found to be weak in terms of content, in our study, the video contents were found to be rich in the analysis of both experts. We think that the reason for this is that the majority of the video content in our study was created by physicians or academicians. At the same time, we found statistical significance in comparing the evaluations of two experts with each other.

When the video contents are examined, it can be seen that in one of the studies evaluating disc herniation videos, non-surgical approaches (40%) were mentioned most frequently, followed by general information (30%).[31] Özsoy et al.[23] report that video contents involve general information about fibromyalgia with 55% and treatment approaches with 23%. In our study the mostly encountered video content was definition and treatment of HT, with 92.9%.

Unlike in our study, in studies examine the videos on social platforms, scales such as DISCERN and JAMA, which are actually used to evaluate written scientific materials, are usually applied, however, it is recommended to create distinct appropriate scales and methodologies for the evaluation of the quality visual publications.[32]

Study Limitations

Our study is focused on videos in the Turkish language. This does not provide an opinion on the quality and content of videos in other languages. Therefore it does not provide insights into what kind of information videos in different languages offer regarding hypertension.

CONCLUSION

Our results also indicate that video content related to hypertension generally covers important topics such as diagnosis, treatment, epidemiology, dietary recommendations, and complications. This suggests that videos related to hypertension are generally informative and educational.

Among the limitations of our study, it is important to remember that YouTube videos are constantly updated, and new content continues to be added. Therefore, the videos we examined reflect a snapshot in time. Additionally, it should be understood that the scoring systems used to assess the quality and reliability of videos may be subjective and may not always be comprehensive for all viewers.

In conclusion, we demonstrate that YouTube videos related to hypertension are generally created by reliable sources, and we believe that patients can use these videos for informational purposes. However, caution should always be exercised, and consultation with healthcare professionals is advisable. These videos can assist in understanding and managing hypertension but should not replace official medical advice.

ETHICAL DECLARATIONS

Ethics Committee Approval: This study did not require ethical committee approval since access to YouTube videos is legally open to the public. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Informed Consent: This study did not require informed consent since access to YouTube videos is legally open to the public.

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